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## ABSTRACT

The cooperative efforts of the customer and service information department in IBM's Kingston, New York, laboratory and members of the academic community designed to improve technical communication and knowledge skills for all concerned are described in this report. These efforts described include (1) study groups working to design a library of publications for a new product, (2) on-site courses taught by a university professor to help employees upgrade their writing skills, (3) academic help with the design of reader surveys and survey data analysis, (4) collection of useful academic studies, (5) a cooperative education program for students on semester breaks, (6) presentations to university classes, (7) participation at the Association of Departments of English conference, and (8) a graduate work-study program for employees. (JL)

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INDUSTRY-UNIVERSITY COOPERATION IN TECHNICAL COMMUNICATION

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The Customer and Service Information department in IBM's Kingston laboratory is fostering a continuing productive relationship with members of the academic community to improve technical communication skills and knowledge of all concerned. We believe that we and the academic groups involved have benefited greatly from these associations because all participants have gained a type of knowledge and experience that they would have otherwise missed.

This paper describes some projects and on-going activities.

### Study Groups

Study groups consisting of members of a writing department and members of the academic community meet to work out job-related problems. In our first study group, several of our writers worked with Merrill Whitburn, chairman of Rensselaer Polytechnic Institute's department of Language, Literature, and Communication, to design a library of publications for a new product. The writers gained from the professor's knowledge and

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experience, and were able to gain new insight into their work. The professor gained new insight into our publication process which will help him in future projects with us as well as in teaching writing courses that are relevant to students at his university, who will soon go out into the industrial market.

From the study group, we learned:

- heuristic devices for generating content
- better ways to incorporate graphics earlier in our writing and development cycle
- use of models and earlier works to develop publications that are more complete and compatible with information with which the reader may be familiar.

From the study group, our visiting professor learned:

- our development process and how we acquire information
- our inspection process and how we ensure technical accuracy.

- our management process and how we allocate resources.

#### On-Site Courses (at IBM Kingston)

Because education in the basics of writing and exposure to current trends and practices is vital to the writers in our department, we have arranged for Professor Merrill Whitburn to come from Rensselaer Polytechnic Institute to Kingston to work with us to help our writers upgrade their writing skills. His work with the writers brings him to Kingston on a regular basis--usually once a week--to teach writing courses and work with writers on special projects. Because the courses are tailored to the needs of our writers, interest in the courses has been quite high. Because the courses are taught on-site, writers do not need to travel to classes, and attendance is much higher than if the courses were offered elsewhere.

During the Fall of 1980, he taught a course to Kingston writers on publication usability. The course focused on adapting material for its intended audience, methods of organization, and techniques for defining terms and concepts, as well as the mechanical aspects of making writing easy to read and understand.

In the spring of 1981, he developed a collection of "before" and "after" examples of technical writing. These examples, the first in a series of collections, will serve as models for writers to see how pieces of

writing have been improved and suggest ways that they can improve the writing on their own projects.

In the Fall of 1981 he taught a series of mini-courses to the writing departments:

- Style and mechanics in computer documentation. Topics included: maintaining parallelism, avoiding awkwardness, cutting unnecessary words, using passive and active voice, and using punctuation according to IBM standards.
- Organization in computer documentation. Topics included: basing organization on audience, purpose, and content; selecting a good principle of organization; using the task-oriented architecture; providing good signposts in a table of contents; headings; highlights; and indexes.
- Procedures for developing content for computer documentation. Topics included: interviewing information sources; reviewing past publications; consulting with graphics specialists early in the writing process; and learning from inspections.

- Graphics in computer documentation. Topics included: developing book, cover, and page designs; choosing artwork; improving retrieval aids; and selecting typography.
- Learning on your own through resources for software documentation. Topics included: knowing the most important journals; reading the best articles and books; using the IBM-Kingston library; attending the International Technical Communication Conference.

#### Reader Surveys and Survey Data Analysis

Members of the academic community helped us design and administer surveys to obtain more useful feedback than we could have obtained on our own.

Professor Robert Krull of Rensselaer Polytechnic Institute helped us on two separate occasions:

1. He redesigned one survey questionnaire to eliminate ambiguity and redundancy and removed or reworked questions that would provide no usable information.

2. He helped us redesign an extensive survey questionnaire to reduce to a minimum the amount of time that a respondent would need to supply the requested information. For example, fill-in-the-blank questions were replaced by checklists; overlapping questions were combined to reduce the total. He performed data analysis on the feedback to determine the significance of the results we received and develop the best course of action from the interpreted results.

#### Collection of Useful Academic Studies

Studies from the academic community often contain empirical studies that can be of use to us in our work. We have received useful information from:

- Sources that our academic contacts made us aware of (for example, the Document Design Center)
- Student projects whose results professors shared with us
- Invitations to attend special class lectures and research project presentations

- Introductions to journals and professional societies
- Empirical research on topics of interest to technical communicators (for example, graphics and readability).

#### Cooperative Education Programs

Like engineering groups throughout the company, IBM Kingston's information development department has developed a cooperative education program with several colleges and universities for students on semester breaks. Students have come to us with backgrounds in mechanical engineering, journalism, industrial design, English and literature, and biomedical engineering. The students received temporary assignments as writers, writer aids, graphic designers, and drafting and layout specialists. During the course of their assignment, they received experience in working within a group to accomplish a "real world" work assignment. They receive training in technical communication and the technical details of the product they are working with as well as the experience of working as part of a group of professionals towards a common goal. They can bring this experience back to the campus with them and apply it to campus situations in ways quite similar to the way they operated while in industry. These programs provide us with sources of temporary help and give us new insight into the way we work and the type of output we produce.

Presentations to University Classes

We have gone to university classes to speak to technical communication classes about the profession and what they can expect once they graduate and begin employment. The students are either potential technical communicators or those who will work with technical communicators on their jobs.

We present a description of our process, improvements we are making, and topics of current interest. Professors have told us that the information we give seems more real and applicable to the students because it is coming from people who do technical communication as a career. The talks thus reenforce what the students have been learning in the classroom and give them a better perspective on what to expect when they graduate and enter the industrial marketplace themselves.

Often more interesting to the students than prepared talks, are question and answer sessions, during which they can ask questions on specific topics of interest to them.

Participation at Association of Departments of English Conference

This summer we will speak to the ADE about English education and the computer industry. We hope to initiate a dialog about the needs of

industry and how academia can help meet these needs and, at the same time, how industry can help academia meet some of its needs.

#### Graduate Work-Study Program for Employees

We grant employees enrolled in graduate programs in technical communication time off, tuition, and book expenses. At present four employees are enrolled in RPI's doctoral program.

What we contribute: Students enrolled in the technical communication program provide a business orientation to class discussions and research projects. When, for example, the class discusses the convergence of science and the humanities, our students can provide concrete examples from their work experience to augment the "book knowledge" of students with little or no outside work background.

What we get back: We receive back from the universities the varied experiences that our students encounter during the course of the education. The empirical thrust of their studies carries over into their work, increasing our emphasis on meaningful measurement of our products and processes. Students are also doing research and study in areas that we did not consider before; the new information obtained will certainly broaden our base of operations and improve our performance.

#### Conclusions

There is a strong tendency on the part of industry and academia to go their own separate ways--each inventing and reinventing the wheel each time a wheel is needed. This need not be the case. Indeed it should not be the case. By working together, industry and academia can share the knowledge, skills, and resources available to each to produce a unified solution that is more acceptable to each with less total expenditure than required to produce separate solutions.

A working relationship between industry and academia need not be hard to establish; there are people in each group eager to form the bridge. What is needed is the initiative to make the first move and then keep the process flowing. As we have found out, the results can be more than worth the effort.